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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/832,220 04/11/01 NARA

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KENYON & KENYON
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WASHINGTON DC 20005

EXAMINER

BERMAN, J

ART UNIT

PAPER NUMBER

2881

DATE MAILED:

08/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/832,220

Applicant(s)

NARA ET AL.

Examiner

Jack I. Berman

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent Number 5,578,821 to Meisberger et al.. Meisberger et al. discloses an inspection apparatus for a circuit pattern comprising an irradiation apparatus (column 20) which uses lenses 95, 104, 125 to direct a charged particle beam 100 onto the surface of a substrate 57 on which a circuit pattern has been formed, detectors 32 for detecting signals from the substrate, memory 52 for storing the signal visualized as an image, a comparing apparatus (defect processor 56) for comparing the stored signal to a signal generated by a different region of the substrate (Meisberger et al. calls such comparison a “die-to-die” comparison), and a monitor 46 which is capable of displaying any of the signals, including those generated by the defect processor. In such a system, the sizes of the pixels of the image signals are not ordinarily set in accordance to the beam diameter of the charged particle beam and there is nothing in the patent to indicate that the Meisberger et al. system is out of the ordinary in this regard. While the patent does mention at lines 33-46 in column 5 that it is “sometimes” necessary to scan regions repeatedly in order to generate images with sufficient contrast or to improve the image signal-to-noise ratio, the use of the word “sometimes” indicates that at other times

Meisberger et al. generates image signals based on only a single scan of a selected region. At lines 22-38 in column 3 and lines 56-58 in column 17, Meisberger et al. teaches that the inspection apparatus classifies the defects found by the defect processor 56 based on features of the defects and the results of this classification are fed to the system computer 36 which in turn sends signals to the column control computer 42, to control further observation of the detected defects, and to the image display 46.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisberger et al. in view of U.S. Patent Number 4,091,374 to Muller et al.. Meisberger et al. teaches that in addition to a "die-to-die" comparison of different regions on the same substrate, the patented inspection system can also be used for a "die-to-database" inspection in which the image derived from the signals generated by the irradiation of a region on the substrate is compared to an image transmitted from an external apparatus (the database). Meisberger et al. does not specify how the various image signals are displayed on the monitor 46, but Muller et al. teaches that images from a real-time scan of a scanning electron microscope and from another source (such as an image storage tube) can be displayed in parallel on a monitor in order to view an orientation image (map display picture) as well as a working image (electron beam image). It would have been obvious to a person having ordinary skill in the art to apply the teachings of Muller et al.

to the Meisberger et al. inspection system by displaying the two images in parallel on the same monitor.

Claim 6 is rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent Number 5,841,893 to Ishikawa. Ishikawa discloses an inspection process for a circuit pattern wherein defects or foreign particles on the circuit pattern are observed after each of a plurality of manufacturing steps and, as is discussed beginning at line 5 in column 21, increases in the number of defects or foreign particles after specific manufacturing steps are detected and correlated with yield rates, and the defects are classified according to the correlation and the history of each processing apparatus in the manufacturing process.

Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,259,960 to Inokuchi. Inokuchi discloses an inspection system for a circuit pattern comprising a preliminary inspection apparatus that inspects substrates and extracts defect information and transmits this information to a review SEM (an observing apparatus identical to that claimed in the instant application) that uses the coordinates of defects found by the preliminary inspection apparatus to observe these defects.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inokuchi. It would have been obvious to a person having ordinary skill in the art to adhere a mark to a location of a defect found in Inokuchi's preliminary inspection apparatus to make it easier to find with the review SEM (observation apparatus).

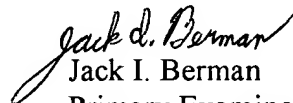
Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inokuchi et al. in view of Ishikawa. It would have been obvious to a person having ordinary skill in

the art to provide the Inokuchi inspection system with means to perform Ishikawa's method of analyzing the yield of a multi-step manufacturing system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack I. Berman whose telephone number is (703) 308-4849. The examiner can normally be reached on M-F (8:30-6:00) with every second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa M. Arroyo can be reached on (703) 308-4782. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Jack I. Berman
Primary Examiner
Art Unit 2881

jb
August 22, 2001